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Medical Problems Explained

By

FREDERICK H. LATTERNER, M. D.

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FREDERICK H. LATTERNER, M. D.

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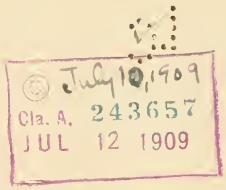
FREDERICK H. LATTERNER



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INTRODUCTION

The most important lessons to be derived from the annals of scientific discovery is to the effect that in any attempt to unravel the mysteries of nature we must push our investigations from the domain of the phenomenal into that of the fundamental—from the realm of facts and occurrences, into that of *Forces and Principles*—and that this eventuates in the *Simplification* as well as explanation of the facts of experience and observation.

Newton pushed his investigations to the extent of discovering that all the facts and occurrences of the physical realm, from the flowing of the terrestrial rivers to the journeyings of the heavenly bodies, are produced by a single fundamental principle, called Gravitation. By following a similar course, Dalton discovered that all chemical phenomena is produced by a single agency, called Chemical Affinity. For a long space of time scientists claimed that all things may be divided into two things—matter and energy—but of late they have gone to the extreme of asserting that these two are resolvable into one, the ion. In short, all scientific experience may be reduced to aphorismic proportions

by saying: Scientific discovery tends to simplify matters by disclosing a single agency, or at most, a few of such, as the basis for a wide range of complex and apparently diverse phenomena. By proceeding in harmony with these scientific examples, the writer has succeeded in reducing the problems of Health and Disease to their lowest terms, in that he has discovered, as he verily believes: 1. That the Living Organism owes its every movement, whether of health or disease, to a Single form of Energy—The Vitomotive Force—which evinces its capability by possessing, by its maximum efficiency, the enormous dynamic equivalent of Six Hundred Pounds to the square inch.

2. That all diseases are One Disease and that this is attributable to a Single Cause—that long known, yet unknown quantity in the etiological equation to which the "susceptibility" of the body to Infection has been attributed, but not explained, by medical authorities.

FREDERICK H. LATTERNER, M. D.

CHAPTER I.

THE EXISTING SITUATION

AN APPALLING AND RAPIDLY INCREASING PREVALENCE OF THE INSIDIOUS AND SUPPOSEDLY INCURABLE DISEASES.

Certain diseases of the kidneys, heart and nervous system have not only become fearfully prevalent, but have so *completely baffled* the various measures commonly employed in such cases that it has come to be generally believed in medical circles that a cure is practically, if not utterly, impossible. Hence, if a man's heart becomes irregular, excitable or painful; or if the *blood rushes to his brain* at intervals; or if his *extremities* be *unsteady* and the seat of *lancinating pains;* or if his *urine* be laden with *sugar*, or *albumen*, or *tube-casts*, and especially if there be any *pain* or *tenderness* in the *region of the kidneys*, and a puffiness here and there of the tissues, he is either left to draw his own conclusions as to his prospects, or else gently informed by his medical adviser that nothing more than temporary relief is to be expected—a declaration which is in mercy avoided, when possible, for it is eminently calculated to send the average individual in the direction of the grave

and with a constantly accelerating speed. In other words, the world is laboring under the crushing conviction that the individual who has drifted into the toils of diabetes, or Bright's disease, or heart disease, or locomotor ataxia, or is exhibiting the symptoms of impending paralysis, apoplexy, epilepsy or chorea (commonly called St. Vitus dance), is beyond the pale of a radical cure and that dependence must therefore be placed upon palliative measures.

THE KEY TO THE SITUATION.

Now it is the peculiar mission of this book to call attention to the *well demonstrated fact* that, by reason of a most extensive study of vital phenomena, normal and abnormal, the writer has obtained the Key to this unfortunate situation and that it consists of a definite knowledge of the fundamentals of health and disease and the consequent ability, not only to detect a variety of complications which are so completely masked that they have almost invariably escaped detection, but to devise a combination of measures, medicinal, electrical, mechanical, manual and regiminal, constituting *a system of treatment* of sufficient scope, flexibility and effectiveness to meet the requirements of the above named diseases, and by reducing the solid or semi-solid

matter on whose obstructive action the morbid process depends, to a perfectly liquid and therefore dialyzable state, in which condition it is easily discharged through the natural outlets— the skin, liver, kidneys and bowels.

The removal of the matter in question enables the only physician extant, the *vis medicatrix naturae,* to repair the injuries that the various organs have sustained, the ultimate result being the attainment of the otherwise unattainable-namely, abounding health.

The diseases in question have baffled the ordinary methods of treatment for centuries, and because the morbid material on which the problematic diseases in general have been found to depend, is not only insoluble in the systemic fluids and in water of any quality or temperature, but imbedded in the capillaries, follicles, glands and interstitial spaces of the internal or deep-seated organs.

THE GERM THEORY.

The Germ Theory of disease rests upon the following superstructure: (1) The science of *Bacteriology;* (2) *Preventive Medicine;* (3) *Antiseptic Surgery;* (4) *Anti-Bacterial Therapeutics.* We know from microscopical examinations that germs are present in certain diseases, also that certain pathognomonic symptoms are produced in a patient,

indicating to the physician the special kind of germ producing the typical symptoms, and while the symptoms of many diseases are due to the action of certain discovered organisms, in many cases, such as Cancer, where a germ has not been discovered, the claim is often made, nevertheless, that it is due to a germ. Facts without prinicples to explain them are essentially misleading—a correct theory must possess the underlying principles and as a false theory is applied in nature as "demonstration by occlusion," it shows that we approach truth upon the stepping stones of error. The secret of the estrangement and loss of popular confidence and appreciation in medicine as practiced today, is the large fatality of many diseases, as evidenced by the inability of the germicides to stamp out diseases known to be associated with bacteria. Susceptibility and a suitable soil are essential in an individual for germs to obtain a foothold and propagate, and the soil upon which infection depends is not the body itself, but something essentially foreign thereto, evidenced by the fact that a patient is exposed to infection and escapes, while at another time upon only slight exposure becomes infected, and as a certain pabulum or soil is necessary in an individual for germs to propagate, then is it not reasonable to suppose that some-

thing paves the way for the germs, and that they are the lesser of the two causes?

All life is due to energy: (1) Heat; (2) Nervous Power; (3) Muscular Energy. The current teaching implies that the motility of the primordial animal cell, or white blood corpuscle, explains the vital activity, or muscular energy, and if so, what is the moving power, how does it set the vital machinery in motion, and what rules obtain in the development of the same? I intend to show that the Respiratory Food Hypothesis, the Nitrogenous Food Theory and the Cell Theory are all erroneous. The Respiratory Food Hypothesis owes its existence to the fact that Carbo-Hydrates and Hydro-Carbons contain the combustible materials, Carbon and Hydrogen. The Nitrogenous Food Theory claims that the Nitrogenous balance can only be maintained by rebuilding the tissues destroyed with food rich in Nitrogen—so we give meats, eggs, cheese, cereals and legumes—the ingestion of which also increases the number of leucocytes. The Cell Theory teaches that every living thing is an aggregation of cells and that the leucocyte is the primordial animal cell. The Leucocyte sends forth and withdraws its tentacles and is composed of either bioplasm, cytoplasm, protoplasm, blastema, sarcode and germinal matter, and is the physical basis of all life.

CELLULAR PATHOLOGY.

Professor Virchow, the originator, says that all pathological changes are due to an abnormal increase of the number of the cellular elements—meaning the white blood corpuscle, and the retrograde metamorphosis of the same is attributed to the presence of toxines in the blood, hence it has been deemed a very serious matter that the basic cell of life is destroyed. During the past fifty years the public health has rapidly declined; Insanity has increased 300%; Cancer 305%; Bright's Disease 525%; Diabetes 1459%.

THE PHOTOLYTIC DISSOCIATION OF THE ELEMENTS.

Plant Life, the Sunbeam Theory and Chlorophyl belief: Authorities declare the wood we use as fuel and grain as food are valuable because of the energy they have stored up from the sunlight in which they grow; that the solar beams are actually stored up in the substance of a plant. The Chlorophyl hypothesis involves the mistake in attributing to the thing formed the work of forming things. Chlorophyl is the first product of the assimilating process and not the essential agent in the assimilation in plants. Chloro-

phyl granules are supposed to decompose carbonic acid and water under the action of sunlight, with the evolution of oxygen and the formation of starch and other compounds. This newly formed material reflects the green rays of the solar spectrum, the visible effect being the green color of the leaf in which it is formed; the potato coming direct from the soil is white, and when exposed to the solar beams gradually assumes a green color. The change of color cannot be attributed to a material increment of any sort.

How energy is stored in food. Carbon and Hydrogen are the combustible elements of organic matter and presented to the growing plant as oxygen compounds; CO_2 and H_2O. The CO_2 is imbibed from the atmosphere by the leaves of the plant while the H_2O, with the earthy matters afforded by the soil in solution and taken up by the rootlets, is then taken up to the leaves of the plant where it is converted with the CO_2 taken from the air into organic matter. The solar beams play an important part in the transformation. A square inch of a leaf from the common lilac contains 120,000 months that absorb CO_2. The conversion of inorganic elements to the organic is due to two forms of energy, the actinic energy of the chemical power of the solar beams and the vital or inherent power of the

plant. The solar radiations constitute the power behind the throne in transforming lifeless materials of the soil and atmosphere into life, thus sustaining organic matter. The solar rays split the CO_2 and the H_2O into Carbon and Hydrogen which go to form the plant plasma upon which it feeds, the oxygen being thrown off in this dissociation of the elements, the solar rays breaking up the chemical affinity. All plant substance is built up by chemical separation and broken down by the energy of chemical union. Carbon and hydrogen as heat generators are unrivalled, and the adaptability of carbon to vital uses is that it can assume any of the physical properties of matter; solid in the form of plant substance; liquid in the liquid peptones and gaseous as carbon dioxide gas. It is eminently complementary to the doctrine of the conservation of energy in that it shows: (1) How energy is stored in the food substance, (2) to what element food owes its energy-dispensing attributes, (3) how and where this element is commingled with oxygen forming the red blood corpuscle, (4) how these sources of power explain nutrition of the nerves and muscles, (5) how the carbon and oxygen of the nutrient matter stored in the cells are brought into chemical union producing the heat that warms the body, also the nervous

and muscular powers that animate and propel it, (6) how the vito-motive power or muscular energy impinges upon the motor mechanism of the vital machine and setting it in motion, (7) where and how waste products are produced, (8) how the materials are gathered and borne to the emunctories and thence to the outer world. It shows that foods owe their value to the organized carbon they contain and to their capability of being reduced to a dialyzable and non-coagulable liquid peptone. The vital energies depend upon the nutrition or the filling of the cells of the nerves and muscles, and assimilation relates to the growth of the body and repair of abraded or lacerated tissue. The growth and repair from an eight-pound babyhood to a 140-pound manhood comprehend an average assimilation of 6 2/7 pounds per annum, or ¼ ounce per day. The digestive fluid is not a ferment but a powerful solvent, as digestion reduces food to a diffusible state, without depriving it of its organic properties, while fermentation renders it diffusible by reducing it to the inorganic and useless state. The digestive material should be non-coagulable and diffusible or completely peptonized, as it then passes with ease through the intestino-vascular walls to reach the cell cavity. The requisite fineness of food is obtained when it is in condition to be

moulded into the matrices of the red blood corpuscle, and in its passage through the meshes of the lymph nodes the trabeculae break the material passing through them into particles of uniform size. The matrices of the red blood corpuscle imbibe oxygen in the pulmonary capillaries, and the red corpuscle, plus food and oxygen are the materials producing all vital energies, either physical, nervous or thermal, in consequence of the reunion of the previously divorced elements thereof, carbon and oxygen. *Blood Stasis* or Congestion is due to the obstructive action of imperfectly elaborated organic matter, not thoroughly peptonized and which undergoes inspissation or coagulation and chokes up the glands and capillaries. All waste matter is produced in the cells of the muscles and nerves, excepting that discharged by the liver in the shape of bile. The stimulation attending the use of flesh foods (meats) is due to the toxic properties of their enmeshed waste products—that the stimulation is the resentment the vital organism displays whenever an individual indulges in what may be called Necrophagy. Muscles and nerves are not destroyed in the development of the vital energies, as the profession supposes, but exist throughout life unless subjected to traumatic or morbific agencies, while only those cells

subjected to constant wear, as we find in the skin, hair and mucous membrane, are replaced by new cells. The living organism is composed entirely of organic matter and all the vital energies are derived from organized material, and there are only two inorganic substances needed: H_2O, water, as a solvent diluent and detergent, and oxygen, as a supporter of combustion; oxidizing the carbon compounds. All inorganic substances otherwise found, such as the chloride of sodium and carbon dioxide gas are purely waste products and must be expelled. Animal heat is produced by the oxidation of the carbon compounds. Emaciation is due to imperfect digestion, obstruction of the circulation or want of enough food. Muscular fibrils have not the property of contractility, as Anatomists declare, but are acted upon by the Vito Motive power. Congestion, the primary lesion of disease, has never been properly explained by medical authorities, and the doctrines upon which we have been depending for guidance are radically wrong, leading us not into health, but in the confines of disease and death. Life is a display of energy—disease is a loss of energy—while death is a negation of all vital energies. The existing theory of Metabolism is that; there is a gradual destruction of our

bodies going on during life, as no act can be performed except by the wearing away of muscle and other tissues of the body, the bony framework not excepted, hence the impression of people who fear their bodies will be broken down faster than it can be rebuilt, in order to evade these imaginary disasters, are careful to consume each day, whether at work or not, and whether the appetite is present or not, what they consider the proper quantity of so-called tissue building foods, such as meat, eggs, cereals and legumes, and from which the resulting gain in weight is due to the accumulation of imperfectly elaborated material in the body. The paradox of the disablement and untimely destruction of the body in consequence of attempts to build it up on the lines laid down by the doctrine in question are plainly evident. They have never shown the necessity of anything gained by the conversion of food into vital tissues, and then followed by the decomposition of them—they have also failed to show how the nerves carry the nervous influence, or how the muscles can propel the vital machine while undergoing metamorphosis—as it presupposes the solution of continuity. The doctrine of Metabolism is wrong, as there is no destruction and reconstruction of tissues—no oxidation of tissues, as the working of the vital machine

endures from the beginning to the end of life, like the steam engine.

THE RESPIRATORY FOOD THEORY.

teaches that the "calor animalis" or animal heat is produced in consequence of the oxidation of the fats and oils of the foods. It is a fact that the fats after being emulsified in the small bowel, are taken up by the lacteals and borne by the shortest route to the lungs, where they are oxidized at the expense of the oxygen needed for other purposes. In this process there is of course some heat produced, but in a locality where it is not especially needed, and to be distributed by the blood to the surface and extremities would necessarily be a slow process. Fats and oils antagonize digestion, as they envelop the food with an impenetrable film, so that the digestive fluids cannot get at the foods until the oils pass into decay, producing gases. Again they interfere with the bile and pancreatic fluid neutralizing the acidity of the food, and this function being interfered with, the blood is rendered acid. Again fats interfere with the absorption of food by coating the intestinal walls with a film which is impenetrable, and which

must be removed or starvation of tissue results, hence they become emulsified by the bile and pancreatic juices. The emulsified material is not absorbed with the nutrient matter proper, but by the villi of the intestinal tract to the Receptaculum Chili, thence to the Subclavian Vein, in which they are commingled with impure blood, and then divert a percentage of oxygen from the legitimate work of vivifying the red blood corpuscle to the illegitimate task of oxidizing almost worthless material. Man is the only member of the animal creation with the temerity to habitually devour fats—the carnivora only eat it under compulsion, while insects and microbes never attempt to consume pure fat, hence the permanency of well rendered fats and oils. The Eskimo lives in an atmosphere highly charged with oxygen, and exists almost wholly upon a whale blubber diet, while a great many are afflicted with some loathsome disease, due to the ingestion of fats. The reindeer lives in the same region and maintains the requisite temperature on fatless foods, and without any fat in its tissues. A still better evidence of the baselessness of the doctrine is that in civilized lands the demand for animal heat has kept pace with the increase of the fat eating custom.

CHAPTER II.

THE VITOMOTIVE-POWER—ITS NATURE, ORIGIN AND MODUS OPERANDI. THE CONSTRUCTION, NUTRITION, ACTION AND RENOVATION OF THE MUSCLES.

Life is a display of the Vital Energies. Disease is a decline of the Vital Energies. Death is a complete negation of all Vital Energies and properties. The passing of the human body from the first of these extremes to the other, be it slow, rapid or sudden, involves a problem of surpassing importance. Nor can such a problem be solved without first unraveling the problems that are wrapped up in the phenomena of the normal man. In other words, it is a practically self-evident proposition that: If we would find out how the vital energies and structures are impaired and destroyed, as they are in disease, we must first find out how the former are obtained and how the latter are preserved, as they are in health. It is an equally evident fact that, if we would accomplish such a purpose, we must push our investigations from the domain of the phenomenal into that of the fundamental—from the realm of facts and occurrences, into that of actuating energies and ruling principles.

In a word, the solution of the problems of life, normal and abnormal, depends upon the discovery of the power or form of energy that bears the same relation to vital phenomena that gravitation does to physical phenomena, and the same that chemical affinity does to chemical phenomena. That is to say, if we would solve the riddles of vitomotive phenomena we must obtain a definite knowledge of the power or form of energy on which the activities of life chiefly depend and which may therefore be clothed with some such title as the vitomotive—force.

In consequence of this reasoning and of a vast amount of painstaking investigation the writer is prepared, as he verily believes, to maintain that he knows the power that sets the vital machinery in motion, and the rules by which this power is governed, these rules constituting what may justly be regarded as the laws of life.

The discovery in question unravels the mysteries of food production, nutrition, nerve action and muscular contraction, by showing how energy is stored in food; how food energy is transformed into muscular power—the vitomotive-force—the measure of the efficiency of the same (a dynamic equivalent of 40 atmospheres); what this mighty power is; how it is called into being; from what element of the food it

is developed and how it sets the vital machinery in motion.

In short it has been found that the living organism is a gas engine, owing its every movement to expanding carbon dioxide gas. That form of energy which sends the "horseless carriage" in triumphant elegance along the highways of civilization is that which sets all animated nature in motion, nature having done in the very beginning what man has but recently begun to do.

CARBON DIOXIDE.

That carbon dioxide is at the bottom of vito-motive phenomena is a proposition which finds much support to begin with in five well-known facts: (1), that carbon is the most abundant constituent of water-free foods; (2), that carbon dioxide evinces its capability by possessing as its maximum efficiency a dynamic equivalent of 40 atmospheres; (3), that carbon dioxide is the burden of every outgoing breath and of all cutaneous transpiration; (4), that the amount thus discharged increases in exact ratio to the increasing activity of the individual, the output in cases of extreme exertion being ten times greater than it is in those of moderate activity; (5), that carbon dioxide is the most important of all contributors to plant growth—every such contribution de-

pending, as is well known, upon its breaking up of this carbon compound, and this in turn upon the superior potency of the solar beams, the more powerful being able to dispossess and thrust aside the weaker agent, chemical affinity. Separation having been effected, the oxygen returns to the circumambient atmosphere, while the carbon enters the organic compact, as the most important constituent of plant plasma, the material from which the plant is to build up its every part and evolve its every attribute. In short, plants are the laboratories in which nature effects the separation of those elements—carbon and oxygen—from whose reunion within the cells of the living organism must come all the energies, physical, nervous and thermal, of the entire domain of animal nature.

The proposition that the body is actuated by the expansive power of carbon dioxide would have little, if any, weight in the absence of a logical showing that the vital machinery is so constructed that it may be set in motion by such an agent. Attention is now therefore invited to the various processes and principles involved in the construction, nutrition, action and renovation of the muscles, confining attention to those which are subject to the mandates of the will.

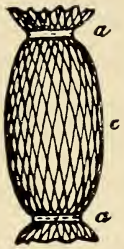


Fig. 1

Cell Structure.

CELL STRUCTURE.

The fascia and the elemental cells. There are in every muscle two contrivances on which its performance as a propelling device depends—the elemental cell, or smallest component part thereof and the fascia, or so-called "investing membrane." The elemental cells correspond to the "dark striae" of the muscular fibrils. The fibrilae of the voluntary muscles, when viewed by the aid of the microscope, appear like strands of red-colored beads. These bead-like subdivisions are separated from one another by what appears to be a thin translucent disk, which is called the light striation. Each dark striation, or bead-like subdivision, of the fibril is a hollow, translucent and highly elastic cell, or cavity, whose primary purpose is the storage of energy—dispensing material or nutrient matter—that mechanical

commingleement of a combustible and a supporter of combustion, of food and oxygen, which is called arterial blood.

Because of the transparency of the cell the nutriment matter contained therein is visible after the manner of a colored fluid in a transparent glass bottle, the aggregate effect being the red appearance of lean meat. The construction of the fibril may be fairly represented by a number of cylindrical pill boxes placed in a row, end to end, the tops and bottoms in contact representing the septa, or partitions between the cells, while the inside of each box represents a single cell or nutrient cavity. In other words, each dark stripe is at once a food depository and an energy-generating laboratory.

Figure 1 illustrates both the form of a cell of the kind under consideration and the reticular, or net-like construction of the cell-wall, C being the cell and a a the septa, or partitions between the cell and those joined thereto, above and below, a part of which is shown in the figure.

It will be seen upon careful consideration of the details thereof that this mode of construction will secure both economy and speedy action—the instantaneous production of a maximum of motion in consequence of the expenditure of a minimum of the actuating power, namely, expanding

carbon dioxide gas. The polar extremities, or ends, of the cells are cemented together, as it were, a great number of cells thus united forming a fibril. This structure has been regarded as the "ultimate element" of a muscle, but the fact is that the cells are the ultimate elements thereof.

NUTRITION AND ELIMINATION.

The filling of the above described cells with nutrient matter—arterial blood—is the culminating event of that much discussed but thus far unexplained process which is called nutrition. The way in which nutrition is effected is, after all, a very simple matter, as will be seen by referring to Fig. 2, which is, upon the whole, a schematic representation of the various structures and processes upon which the vital activities chiefly depend. That is to say in this illustration the various organs are arranged, not as they are in the body, but in such a manner as to enable the student to see at a glance the principal details of the nutritive mechanism and of the functions that it performs—the digestion of the food, the absorption of the digested material, the oxygenation of this material, or incorporation therewith of oxygen; the circulation of the blood,

the consummation of the nutritive process, or passage of food into the cells, and the elimination of the waste matters previously formed in the cells, thus spanning by means of a

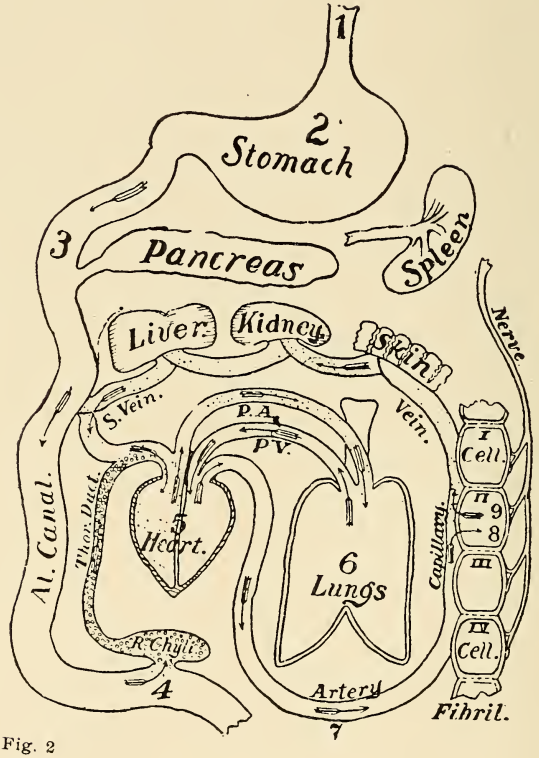


Fig. 2

single engraving the many facts and processes that obtain between the eating of the food and the discharging of the

waste, or ash, that is the vital retort after the food has yielded up its fund of energies, muscular and thermal.

The various structures upon which the performance of these all important functions depends are designated by the numerals 1, 2, 3, 4, 5, 6, 7, 8, 9.

The cells of which the fibril is composed and in which the nutriment matter is deposited in the consummation of the nutritive process are indicated by the Roman numerals, I, II, III, IV.

The functions performed by the former class of structures, beginning at the top of the figure and taking them in order of their action, are: 1. Ingestion of food. 2. Digestion of the food. 3. Neutralization of acids and emulsification of fats. 4. Absorption of the chyle. 5. Cardiac propulsion of the blood. 6. Arterialization, or oxygenation, of the blood. 7. Arterial transportation of the blood. 8. Nutrition, or the filling of the cells with food and oxygen. 9. Elimination of the waste matters previously formed in the cells.

On the right margin of this figure there is depicted a portion of a muscular fibril, consisting of four cells (which are indicated by the Roman numerals), and in connection therewith; first, the trunk and terminal fibres of the attend-

ing nerve (the channels through which the mandates of the will are brought to bear upon nutrient matter stored in the cells); second, the capillary by which the cells, or nutrient cavities, are supplied with nutrient matter; third, the passage of the nutrient matter (by osmosis) from the lumen of the capillary through the cell-wall and into the cell-cavity, which is shown by the ingoing arrow; fourth, the escape of the waste products previously formed in the cell, which is indicated by the outgoing arrow.

CORPUSCLES.

It is more than probable that the "blood-plates" are the matrices of the red corpuscles, imbibing oxygen or oxygen-laden hemoglobin, as a sponge does water, and that this imbibition takes place in the pulmonary capillaries, the oxygen finding its way into these vessels while the ingenerated carbon dioxide is being discharged into the air cells and thence to the outer world—propositions which involve what appears to be a logical settlement of the much mooted question as to the "birth-place" of the red corpuscle.

The corpuscles thus formed and endowed, consisting, as they do, of a combustible substance (food) intimately associated with a "supporter of combustion" (oxygen), are

the materials from which all the vital energies, physical, nervous and thermal, are derived.

The object attained by the formation and oxygenation of the red corpuscle is the segregation and intimate commingling of the requisite amounts of carbon (of the food) and oxygen (of the respired air) to form a non-residual combustible compound—non-residual in the sense that there is just enough carbon and oxygen to form carbon dioxide gas—the vitomotive-force—and no more, the affinities of these elements being completely satisfied, chemically speaking; or in other words, the carbon and oxygen exist in the fully elaborated nutrient matter (red corpuscles) in the proportion of one atom of carbon to two of oxygen—the principal product of this combination being the familiar CO^2 which finds dynamic expression in the animation and propulsion of the vital machine, as explained further on.

In the consummation of the nutritive function, the oxygen-laden materials now described (red corpuscles) are passed by osmosis (either in their entirety or in the form of an intimate blending of their component elements), from the capillaries through the cell-walls and into the cell-cavity.

Lest an important matter should be lost sight of, let it be carefully noted in passing: First, that the passage of the

food with its quantum of oxygen into the cells is the final event of the nutritive process, while the passage of the waste matter out of the cells is the initial event of the eliminative process; secondly, that the replenishment and the depuration of the cells and axis-cylinders of the nerves are effected in a similar manner.

It should also be carefully noted in passing: First, that underlying nutrition, the most important of all vital processes, is that marvelously energetic physical process on which plant growth largely depends—that wondrously forceful transference of liquefied material from one cell or cavity to another by means of which the crude sap is borne upward step by step, or from cell to cell (and in spite of gravitation), from the rootlets to the topmost leaf of the tallest tree that ever grew, namely, osmosis; secondly, that as the day advances and its labors are prosecuted, the waste matters gradually accumulate in the cells (elimination not being able to keep pace with waste production), thus displacing, or the rather, preventing the ingress of the requisite amount of nutriment, the effect upon the sensorium being that of either weariness or exhaustion, according to the extent of the said involvement; thirdly, that sleep, "nature's sweet restorer," now makes good its title by

affording the requisite opportunity for the accumulated waste matter to be exchanged for fresh supplies of the energy-dispensing materials, namely, food and oxygen.

METABOLISM.

The ingoing of the food, and the outgoing of the waste products are simultaneously performed, and for the obvious reason that two things cannot occupy the same space at the same moment of time. As the air must escape from the jug so that the water may enter it, so must the waste materials pass out of the cell so that the nutrient matter can reach its destination, the interior of the cells. The waste products here referred to are the resultants of the combustion of nutrient matter within the cells—a fact which will be explained further on. On being discharged from the cells, as above described, the waste products are passed into the distal end of the subjacent capillary, and thence by the veins to the emunctories, and through these to the outer world. Under normal conditions each of the last named structures collects and discharges that part of the said waste matter for whose elimination it was especially ordained, the skin disposing of the perspirable matter, the liver collecting and discharging any bile that may be formed in this process

(a doubtful matter, however), the lungs the carbon dioxide gas, and the bowels the ingenerated portion of the fecal matter. It will be remembered that all of these waste products, the CO_2 not excepted, are the soluble in the aqueous element, or water, of the blood. As a matter of fact, water fulfills the quadruple purpose of dissolving (by the aid of the digestive juices) and conveying the food to its destination in the nutritive cells, and of dissolving and transporting the waste products of the body to the emunctories, and thence to the outer world.

The cells imbibe nutriment in almost if not exact ratio, it may well be supposed, to the activity of the body, the freedom of the blood flow and the completeness of the intra-arterial supply of fully elaborated nutriment. In other words, the more active the body and the more perfect the existing conditions the more abundant is the imbibition of the food by the cells of the muscles and nerves.

The fascia, or "investing membrane," of the muscle is constructed on the same principle that obtains in the construction of the elemental cells. That is to say, it is a network of very strong and absolutely inelastic filaments, which proceeds, as a general rule, from the tendinous extremities of a muscle and spreads itself over the entire

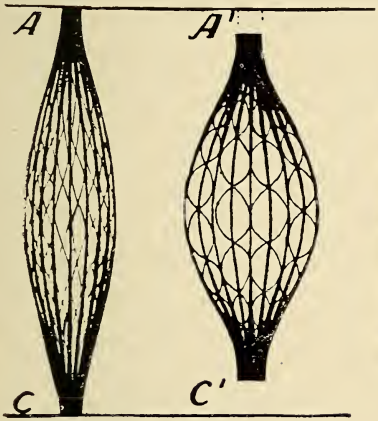


Fig. 3 Fig 4

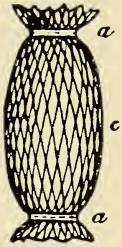


Fig. 5

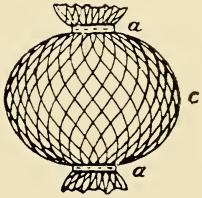


Fig. 6

surface of the same, as shown in Fig. 3. Fig. 4 shows the muscle in a state of contraction, its fascia being transversely expanded and its length reduced. Fig. 5 discloses the mode of the construction of the walls of the cells in which the food is stored—that the cell as well as the fascia is a well-extended network. A moment's study of these diagrams will show that whenever the vitomotive-force is generated within the cell it is bound to expand in the transverse direction and become shorter, as shown in Fig. 6, and that the fascia will in turn be forced by the expansion of the cells to do the same, as shown in Fig. 4.

When the muscle is relaxed, or at rest, both the cells and the fascia are so fully extended in the direction of their

longer axes that their meshes are well nigh closed; hence, their susceptibility to further extension is only sufficient to permit of the action of the opposing muscle. It is an easy matter to see that whenever the network represented by Fig. 3 is expanded from within it will assume the shape of that represented by Fig. 4, involving a transverse expansion and a longitudinal shortening. It is an obvious fact, therefore, that the muscle is free to expand in the transverse direction only, and that the objects attained by this method of construction are: First, the quickest possible response to the mandates of the will; secondly, the greatest possible effect (movement) from the least possible expenditure of the vito-motive-force, as already stated.

MUSCULAR CONTRACTION.

The fascia and the nutrient cells have thus far been considered separate and apart from each other. Let us now proceed to study them as co-workers in the transformation of food-energy into muscular power. The human body is an automaton of the highest order and hitherto of the most enigmatical character. It takes in crude materials in the shape of food and oxygen, and by a hitherto mysterious

alchemy, or vito-chemism, extracts from them a triad of energies, the heat that warms, the energy that controls and the power that propels the living automaton.

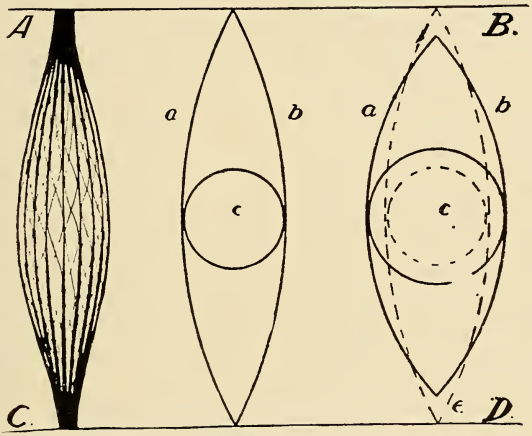


Fig. 7 Fig. 8 Fig. 9

The mechanism through which these wonderful results are produced is, after all, quite simple, as will be seen by reference to Figs. 7, 8 and 9. Fig. 7 represents a muscle with its longitudinally extended network, or fascia, while Figs. 8 and 9 are intended to illustrate muscular contraction. Let us suppose that the lines a and b, Fig. 8, represent opposing sides of the fascia of a muscle and that the junction of these lines, above and below, represent its tendinous extremities. In order to make the mechanics of cell-action all the more easy of comprehension, let us simplify

matters by supposing that all the cells of any given muscle have been blended into one, and that this huge cell is represented by the circle C, of the figure just referred to. It will now be perceived that if this cell be forcibly expanded its diameter will be increased and that it will impinge upon the lines a and b, forcing them apart in the center and producing that approximation of the extremities of the figure which is shown in figure 9. It is needless to point out that the discrepancy between the continuous and the broken lines is intended to indicate the enlargement of the cell and the shortening of the fascia. The attentive reader will readily perceive that whenever the vitomotive-force, or carbon dioxide gas, is developed within the cells, the expansion of this gas will cause the cells to expand; that these will in turn cause the fascia to expand and that this structure will yield, as all other movable and moving objects do, in the direction of least resistance, which is transverse to its longer axis, as will be seen by reference to the fact already stated, namely, that it (the fascia) consists of a longitudinally extended network of absolutely inelastic fibres. For it is an obvious fact that such a structure cannot be further extended, or made longer, but is perfectly open to transverse expansion, which will of necessity make it shorter.

THE UNITY OR ORIGIN OF THE ANIMAL HEAT AND THE VITO-MOTIVE-FORCE.

It is not at all unreasonable to suppose: First, that the nutrient matter stored in the cells is so unstable and so completely under instinctive control that a slow combustion—just sufficient to keep up the ordinary body temperature—may constantly be maintained; second, that the carbon dioxide produced under such circumstances will be taken up by the aqueous element (water) of the blood as fast as it is formed, and that the muscle will therefore remain the meanwhile at rest; third, that in order to arouse and utilize the propulsive capabilities of the nutrient matter that is smouldering, as it were, in the cells it will be necessary to greatly and suddenly increase the oxidizing process, in which event the evolution of the gas in question will be rapid enough to enable it to exert its expansive power upon the muscular structures before it has had time to escape from the cells into the water of the blood; fourth, that this is accomplished by means of a nervous impulse, originated by act of the will or of the vital instincts, as the case may be, and conveyed to the nerve fibres. In short, the combustion that is constantly going on in the cells, giving rise

to animal heat, is stirred into explosive violence by a volitional nervous impulse, the result being the production of carbon dioxide in sufficient volume and with sufficient suddenness to enable it to set the vital machinery in motion before it has had time to escape from the cells.

It will be well for the reader to here pause and not only recall, but fix upon the memory the important and well known fact that oxygen cannot unite with organic matter in the absence of a tertium quid, or third agent, of some sort, and that the nervous influence, a prominent member of this class of agencies, has charge of those combinations of food and oxygen on which the development of the vital energies depends.

The facts which are involved in the transformation of the potential energy of food into the kinetic form, as we find it in the vitomotive-force, cannot be too deeply impressed upon the mind; hence, it will be well to repeat: 1. That the nutrient matter stored in the cells in the consummation of the nutritive process, consisting as it does of a most intimate comminglement of food and oxygen—of a combustible with a supporter of combustion—is in a state of extremely unstable equilibrium, and is, therefore, nothing more nor less than a delicately balanced explosive of

high potential: 2. That the carbon and oxygen thus intimately associated is brought into chemical combination by act of the will expressed by means of the nerves and nervous influence. 3. That, whenever the will so orders an explosion must occur in every cell which is included in or reached by the volitional edits. 4. That the carbon dioxide thus generated within the cells forces them to expand and in a direction which is transverse to the longer axis of the fibril, this being the line of least resistance, as above explained. 5. That the expanding cells impinge upon the inner surface of the fascia causing it to yield in like manner and for the same reason, thus producing that transverse expansion and longitudinal shortening of a muscle upon which the physical activities of the body mainly and evidently depend, as above stated. In short, the will acts, the nutrient matter explodes, the cells expand, the fascia yields, the muscle contracts, and the vital machinery is set in motion; not, however, in consequence of "metabolism" of the "white blood corpuscle," but of the red; not by reason of the "metamorphosis" of the tissues of the body, but of food; not by the energy of "resurrected sunbeams" nor of any other immaterial agency, but of expanding carbon dioxide gas; not in consequence of the presence of nitrogen in

the food nor of any other incombustible element, but of carbon, and this not from the inorganic world, but the organic; not by a product of any laboratory of human origin, but of the plant world—that immeasurably greater concern which was instituted by the All-Wise-Being and for the express purpose of effecting the separation of those elements—carbon and oxygen—from whose reunion within the nutritive cells of the living organism must come all the energies, physical, mental, nervous and thermal of the entire domain of animated nature.

THE MUSCULO-MECHANICAL AND THE TOXICO-VIVIFICAL PARADOXES.

The theories now presented in explanation of the phenomenon of muscular contraction will surely cause the man of science, not only to recall the fact of the wondrous prevalence of the element upon which this great fact of life mainly depends, namely, carbon, but to engage in the delightful as well as instructive diversion of tracing out the splendid circle that it describes in the course of its ministrations on behalf of the vegetable and animal kingdoms; First, in its departure from the precincts of vitality, by way of the respiratory system, and in the shape of carbon diox-

ide gas; then in its wanderings through the circumambient atmosphere in combination with oxygen and under its connubial appellation CO_2; then in its divorcement from its companion (oxygen) and entrance into the organic compact as the principal element, or energy-dispensing, constituent of food; then in its migration from the intestinal tract into the circulating system, as the prime essential of nutrient matter; then in its wanderings through the devious labyrinths of the animal organism as the chief constituent of the red corpuscle, and hence, as the traveling companion and prospective bride of oxygen; then in its passage in company with its attendant (oxygen) from the circulating system into the nutrient cells of the muscular, nervous and cerebral systems; then in its intra-cellular remarriage with oxygen under the ministrations of the duly empowered officials, the will and the vital instincts (the nerves being the bearers of the volitional and instinctive decrees); then in the bestowal of its priceless benefactions—that fervency which sets the body aglow with animal heat; that subtle influence which not only conveys the mandates of the will and of the vital instincts to the deepest recesses and remotest ramifications of the vital organism, but underlies the wonders of the sensorium as well. In short, the scientific

mind will readily perceive that organized carbon is the source, not only of the relatively inferior calor animalis, or animal heat, but of the higher potentialities of life—that subtle agency which puts the ego into vito-electric communication with every province of its vast domain; that matchless radiance which goes to make up the intellectual splendors of the world, and, last, but not least, that marvelous physical agency which sets all animated nature in motion, baffling identification in the peculiarities of its modus operandi—a performance which comprehends two of the most remarkable paradoxes to be found, namely, the toxico-vivifical paradox of producing life by means of a deadly gas, and the musculo-mechanical paradox of producing contraction by means of expansion, the contraction of the muscles in consequence of the forcible expansion of their component cells.

The validity and practical value of the discovery set forth, that the vito-motive force is both the actuating agent and the ruling principle of the vital domain, can be seen by following the example set by the physical scientists—a procedure which is more reliable, even, than that of experimentation.

In speaking of the fundamentals of physical science,

Prof. Huxley declared (page 66, Smithsonian Report, 1887) that—

"All physical science starts from certain postulates. One of them is the objective existence of a material world. It is assumed that the phenomena which are comprehended under this name have a "substratum" of extended, impenetrable, mobile substance, which exhibits the quality known as inertia, and is termed matter. Another postulate is the universality of the law of causation; that nothing happens without a cause (that is, a necessary precedent condition), and that the state of the physical universe, at any given moment, is the consequence of its state at any preceding moment. Another is that any of the rules or so-called "laws of nature," by which the relation of phenomena is truly defined, is true for all time. The validity of these postulates is a problem of metaphysics; they are neither self-evident nor are they, strictly speaking, demonstrable. The justification of their employment, as axioms of physical philosophy, lies in the circumstance that expectations logically based upon them are verified, or, at any rate, not contradicted, whenever they can be tested by experience."

Precisely the same is true of the postulates advanced in the preceding chapter. While it is impossible for anyone

to view with the physical organ of vision the vito-motive force and its correlated energies at work, any man of average imaginative capacity can witness the operation of these agencies by bringing the metaphysical organ of vision—the eye of the mind—into action. By this means he can see the solar beam splitting the carbon dioxide of plant growth, leaving the carbon in possession of the plant and sending the oxygen back into the atmosphere to await the opportunity to reclaim its divorced companion; he can see the carbon (of the food) brought into intimate association with its former companion (oxygen) in the event of the completion—oxygenation—of the matrices of the red blood corpuscles; he can see these newly developed corpuscular magazines of energy in their journeyings from the pulmonary capillaries through the arterial system to the terminal capillaries thereof and from these to the interior of the nutritive cells; he can see the tiny nervo-electric spark solemnize the nuptials of the carbon and oxygen by "touching off" this magazine of nutritive explosives, and hear, if he will, the gladsome rejoicings of the occasion in the shape of the "tone" (detonations) referred to but not explained in Prof. Marey's "Animal Mechanism"; he can see the energies thus produced—ani-

mal heat and the vito-motive force—warming and actuating the vital organism; he can see the agent that gave rise to these actions, the supposedly unimportant, yet all-imortant CO_2, wending its way from the scene of its paradoxical exploits to the outer world and thence by way of the atmosphere to the court in which divorcement is to be reenacted—the plant world—all this is seen, and just as plainly as if it had been viewed by the anatomical organ of vision. In short, the time has come when the eye that witnesses the operations of gravity and chemical affinity may hold the vastly more important operations of the vito-motive force and its co-workers, the calor animalis and the nervous influence.

It will also be seen that this newly conceived vital philosophy commends itself not only by being perfectly harmonious within itself and with the exact sciences, but by possessing the further attribute of being complementary to that matchless conception of energy, bridging the obviously existent hiatus between the known and the unknown in its relation to vital phenomena, by disclosing the ruling principle of the vital domain—the vito-motive force—showing how and from what this agent is derived, how it impinges upon the motor mechanism of the body

and suggesting the rules by which it is governed. In short, the knowledge now set forth in this connection together with certain generally accepted truths may be codified, forming what may justly be regarded as the laws of life. This may be roughly done as follows:

THE LAWS OF LIFE.

1. All life begins with a cell or ovum, which is a product of antecedent life.

2. Every living organism, vegetable and animal, is in its essence an aggregation of cells, each cell being attached to other cells of the same class.

3. Every living organism, vegetable and animal, is the offspring of two parent organisms, male and female.

4. Every living organism, vegetable and animal, is composed of organized materials.

5. Every living thing, vegetable and animal, depends for its growth and development upon organized material—namely, food.

6. Plants aided by solar chemism prepare their own food, by converting the inorganic materials obtained from the earth and atmosphere into organic matter, plant plasma.

7. The growth of plants depends in part upon an adequate quantity of water, which supplies the requisite hydrogen, dissolves the earthy matters, and conveys the dissolved materials to the organizing laboratories—the leaves.

8. The food of animals consists of such organized materials as they are able to digest and appropriate in the growth and repair of their bodies, and in the development of their energies.

9. The prime essential of the food of animals is that element from which the vital energies, physical, nervous and thermal, are developed—namely, carbon.

10. Animals require in addition to food two inorganic substances—namely, water and oxygen—the former to serve as a solvent, diluent and detergent, and the latter as an oxidizer, combining with the carbon of the food in the development of the vito-motive force, nervous energy and animal heat.

11. Plant respiration takes place in the leaves thereof and consists in the absorption of carbon dioxide, the dissociation of its elements, the appropriation of the carbon, and the elimination of the oxygen.

12. Animal respiration takes place in the pulmonary organs and consists in the exchange of carbon dioxide for oxygen.

13. Assimilation consists in the transformation of peptonized materials into animal tissues and is confined to the growth of the body and the repair of its damaged tissues.

14. Nutrition consists in the refilling of the cells of which the muscular and nervous systems are composed with nutrient matter.

15. The proper performance of the vital machinery depends upon the complete and timely elimination of all useless materials, from those produced in the cells in the development of the vital energies, to such substances as may find their way into the circulation in advance of their complete digestion.

16. The residual matters are discharged through the lungs, the skin, bowels and kidneys, while all food substances that find their way into the blood vessels in advance of complete peptonization are, as a rule, transformed into less harmful substances and then discharged by the liver —the albumin and cellulose into fibrin, the starch into glucose, and these in turn into bile, which is then passed

into the duodenum and utilized in common with the pancreatic secretion in the neutralization of the acids of the food.

17. The eliminating organs perform vicarious service, when necessary, one organ discharging material that another organ is not able to dispose of.

PRACTICAL SUGGESTIONS.

The theory now advanced in explanation of vito-motive phenomena involves many important facts, principles and implications, among which are the following:

1. It is in harmony with the fact that scientific discovery tends to simplify matters by disclosing a single form of energy, or at most a few of such, as the basis of a wide range of complex and seemingly diverse phenomena —that discovery involves the simplification as well as the explanation of the facts of experience and observation.

2. It has disclosed an important distinction which had escaped us—namely, that the digestive fluid is not a ferment, but a powerful solvent—that digestion reduces food to the diffusible state without depriving it of its organic properties, while fermentation renders it diffusible by reducing it to its elements.

3. It shows that digestion must be carried to such a state of perfection that the food shall be both perfectly diffusible and non-coagulable; that is, reduced to a peptone.

4. It shows that all the vital energies are derived from that intimate admixture of food and oxygen—of a combustible with a supporter of combustion—which is termed the red blood corpuscle.

5. It settles the much mooted questions regarding the "birth place" and "death place" of the hemocytes, or red corpuscles—showing that they are born, or completed, in the pulmonary capillaries, and that they are destroyed in the cells of the muscular and nervous systems, giving rise to animal heat, nervous energy and muscular power.

6. It shows that the object attained by the formation and oxygenation of the red corpuscle is the segregation and intimate commingling of the requisite amounts of carbon and oxygen to form a non-resident combustible compound—non-residual in the sense that there is just enough carbon and oxygen in each corpuscle to form carbon dioxid gas, or animal heat, or nervous energy, as the case may be, the affinities of both constituents—carbon and oxygen—being exactly satisfied, chemically speaking. In other words, the carbon and oxygen exist in the fully elaborated

nutrient matter in the proportion of one atom of carbon to two of oxygen, their chemical union finding symbolic illustration in the familiar CO_2, and dynamic expression in the animation and propulsion of the living machine.

7. It implies that the waste matters discharged by the body are divisible into two classes, legitimate and illegitimate: (1) The products of intra-cellular combustion—the ash that remains in the cell after the food has been consumed, the outlets being the skin, kidneys and lungs; (2) such materials as happen to find their way into the blood in advance of being completely digested, the albuminoids being transformed into fibrin and the amyloids into glucose and the two into bile.

8. It has disclosed the fact that the muscular fibers are not "endowed with the property of contractility," as we have heretofore supposed, but act as they are acted upon by the vito-motive force.

9. It indicates that in the production of vito-motive phenomena nervous energy is second in point of importance, because it bears the same relation to the vito-motive force that the tiny electric spark does to the mighty power that is developed by the explosion of the powder charge, and that it is proper, therefore, to regard the vito-motive

force as the counterpart of gravitation and chemical affinity, and, hence, as the law-giving agency.

10. It shows that the superiority of the "nitrogenous foods" is referable not to their nitrogen element, of which there is only 16 per cent, but to their carbon constituent, of which there is 54 per cent—facts which imply that nitrogen simply serves, in common with the other incombustible elements, to impart stability to the food.

11. In fine, it will be seen upon due investigation that the doctrine of the vito-motive force involves the key to the early decline and untimely destruction of the human body, and that the time is not far distant when the motto, "Lux Mentis Scientia," will be as applicable to the medical sciences as it is to any member of the family of sciences.

CHAPTER III.

THE COMPONENT PARTS OF THE BLOOD.

The *Liver, Spleen* and *Thyroid Gland* were devised for the purpose of gathering up and preparing for elimination such elements of food as may find their way into the circulation in advance of complete digestion or liquefaction essential to assimilation and nutrition. The Lymphatics originate in the interstitial spaces, and they imbibe the escaped material from the cells and return it to the center of the circulating system, and in passing through the trabeculae of the lymph nodes, the albuminous part is broken into particles called lymph corpuscles. The Spleen, Liver and Thyroid Gland change non-usable material; partially elaborated gelatin, fibrin, gluten, amylum, albumin and cellulose. The capillaries of the Spleen, after penetrating the pulp end abruptly and do not anastomose, so the Splenic artery empties into the pulp of the Spleen. The radicles of the Splenic veins begin the same way in the pulp and stand ready to receive escaping matter. In this pulp reticulum of delicate fibres and cells, we find in the meshes red corpuscles, leucocytes in greater number than normally in the blood and free amoeboid cells, larger

than the leucocytes, and called Splenic cells. The usable materials in the Spleen are converted into peptone or its equivalent, while the indigestible or useless lignin, cellulose and coarse fibrous tissue into fibrinogen. This also imparts to the blood its consistency or viscosity, the property that enables it to hold the red blood corpuscles in suspension, and favors the passage of nutrient matter into the cells by establishing resistance sufficient in the capillaries to impart emphasis to the osmotic action. Normal viscosity of the blood is given as 4.7 to 5.5 while it should be about 3.5, and when 5 is reached it should be considered abnormal. Fibrinogen subserves when needed, protection to abraded surfaces, and seals ruptured blood vessels by its coagulability. The Spleen serves to mitigate the shock produced by a rush of blood from the periphery to the center of the system, as it is elastic enough to expand three times its normal size, thus acting as a safety valve in case of shock.

The Spleen also converts imperfectly elaborated albuminoids. The Liver reduces undigested starch to glycogen and converts figrinogen and glycogen into bile—the bile is emptied into the duodenum where it combines with the alkaline pancreatic juice and neutralizes the acids of the

food, and emulsifies the oleaginous material, such as fats and oils. The Thyroid Gland secretions pave the way for the elimination of non-usable colloid, mucoid, gelatinous or muciparious materials, which substances if not properly eliminated, produce Exophthalmic Goitre, Myxoedema and Colloid disease, producing high blood pressure, deficient nutrition, mental aberration, etc. Increased viscosity of the blood is due to the inability of the Spleen to reduce the albuminoids into fibrinogen, or of the inability of the Liver to convert fibrinogen into bile, or to the inability of both organs to discharge their duty. *Glycosuria* is due to the inability of the Liver to convert glycogen into bile, as the material submitted to the organ may be too great to reduce. *Albuminuria* is referable to a superabundant production of serum albumin and the inability of the Spleen to convert it into fibrinogen.

THE CELL THEORY.

The Cell Theory involves a major and a minor premise. The major involves that all life begins with a cell, both animal and vegetable, and that everything is an aggregation of cells. The minor, that the leucocyte or white corpuscle is the primordial animal cell. Metchnikoff amends: first, it

reproduces wornout tissues; second, it is a phagocyte; third, it devours and destroys germs. At a certain period of its history the leucocyte sends forth and withdraws its tentacles "pseudopodia" and with the effect of locomotion, it simulates a living organism and the beginning of life; in fact the physical basis of life. A dispute in the profession differentiating leucocytes and pus corpuscles resulted in Virchow's Criterion; you must have a knowledge of its source; if from the blood, it is a leucocyte, if from an abscess, it is a pus corpuscle. All biologic and physiologic—dietetic and pathologic teachings show that the white corpuscle is a living cell, and by this assumption defeating the devotees of the healing art and carrying pain and wreckage to thousands, and is responsible for the large mortuary statistics of the period during which it has been regnant. The white corpuscle and other diversely shaped albuminoid materials, variously termed leucocytes, embryonal cells—white cells, giant cells, nucleated and non-nucleated cells, also multi-nucleated and pus corpuscles, and called so many distinct entities, are the same *disturbing elements par excellence of the vital economy.* The white blood corpuscle is a Mortuous Corpusculum, or dead corpuscle, and a foreign body of dangerous import, and its

movement is without progress. The cell theory has blocked the wheels of the medical progression for years. The leucocyte paves the way for disease in general; (1) In Good Health, we have one white to one thousand red corpuscles; (2) In Ill Health, the number of the white is unusually large at the start; (3) the number increases with the gravity of the morbid process; (4) in the severest cases the white corpuscles predominate and the percentage is reversed; (5) the patient is always less likely to recover with an increasing number of the white blood corpuscles.

SOURCE OF INFECTION.

The Leucocyte is of the same material as the composition of cells found in various morbid growths, and which have simply been expelled from the circulation, being considered intruders. Here they assemble in some defenseless region and blend into larger cells, finally forming Tumors, etc. The disease germ is the *tertium quid* or third agent upon which the unstable forms of organic matter depends —and as the leucocytes constitute the pabulum, or soil upon which propagation of disease germs depend, and what seems to be the phagocytic operation of the destroyer (leucocyte), *is the thing destroyed.* The motility of the white

corpuscle is due to chemical dissolution—the combined effects of chemotaxis, disintegration and gaseous expansion. Nature has allowed the deceptive feat of causing a particle of decaying organic matter to simulate the phenomena of life with marvelous accuracy. The White Corpuscles are composed of albumin; are of a viscid nature; are coagulable and practically non-existent in health and numerous in disease; are undoubtedly particles of partially digested material, and should be regarded as foreign bodies. It is due to their viscidity, that causes bacteria to adhere to them, and it is the function of germs to destroy the leucocyte, it being useless organic matter, and the incidental effects are the disease the infection represents, the breaking up and discharge of the offending material, or death —the patient having become exhausted before the eliminating process could be completed. *Misinterpreted facts*: the leucocytes become less active in lowered temperature, which checks the decomposition, and more active in a high temperature with an increase in the disintegrating process, and the fact that biologists declare it is killed by iodine, arsenic and other poisons, is due to the preservative action of these drugs.

There is a wide difference in the changes in a real

animal cell and Leucocytes. The increase in real animal cells, as in the Ovum, is ad infinitum, in exact geometrical ratio—a thing never observed in Amoeba, or the white blood corpuscle. *History of the white cell*: It starts out as a spheroidal non-nuclear and non-motile albuminoid mass, later into mono-nuclear of uncertain configuration, next into a moving body—later it may fall to pieces and disappear.

CHAPTER IV.

PATHOGEN.

All diseases save those which are caused by traumatism or by poisons introduced from external sources, owe their incipiency and most of their subsequent history to a *Single Cause*. Reference is made to a certain substance which is so extremely deceptive that it is generally regarded as an essential element of the blood, when it is, in reality, so extremely antagonistic to vital interests that it is entitled, not only to the first place in the category of disease-producing agencies, but to the further distinction of having a name of its own. For this reason it has been named PATHOGEN—a term constructed from the Greek roots, *path*, which means, to suffer, and *gen*, which means, to generate or produce.

To advance such a radical theory as this without being able to demonstrate on both logical and experimental lines that it is essentially if not absolutely correct, would be folly of the rankest and most reprehensible order.

Attention will now, therefore be called to the logical aspects of the proposition—to what is believed to be a perfectly trustworthy explanation of the nature, origin

and modus operandi of the matchless disturber of the systemic equilibrium above referred to, and with the hope that the reader will not lose sight of the fact that *simplicity* is the recognized touchstone of modern science.

Pathogen is both well known and wholly unknown to the scientific world—well known as an incumbent of the vital stream, but unknown as the PRINCIPAL CAUSE of disease; it is known to science as serum albumen, and to the discoverer as PARTIALLY elaborated organic matter—as a derivative of those elements of the ingesta which proved to be refractory to the digestive capacity of its host, cellulose and amylum affording the leading examples.

Pathogen interferes with vital operations: (1) by rendering the blood so thick and viscid that it cannot be properly distributed; (2) by clogging the glands and capillaries, producing congestion and most if not all the injuries that such a fact naturally implies, the foremost being imperfect digestion, impaired nutrition and incomplete elimination; (3) by furnishing a "*suitable soil*" for the propagation of infective organisms; (4) by generating through the action of these organisms the greater part of the toxins, or putrefactive alkaloids, that we find in the progress of disease; (5) by producing irritation and that

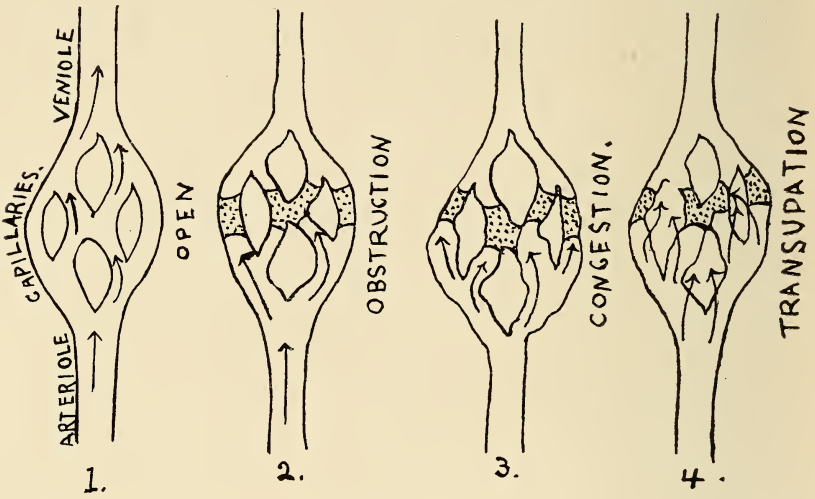
form of vital resistance which is called inflammation, and, per consequence, that abnegation of vital properties which is variously termed necrosis, tissue starvation and gangrenous degeneration; (6) by escaping into the interstitial spaces and assuming the form and virulence of "tubercles" and "cancer bodies." This substance is exceedingly hard to get rid of because it is practically insoluble in the aqueous element of the blood, or in water of any quality or temperature, a fact which accounts for the persistency of chronic diseases.

Pathogen finds its way into the circulation so gradually and stealthily that the vital current is seriously contaminated with it before its presence therein is suspected; it is to begin with a glairy, partially diffusible and somewhat viscid substance, and as time advances becomes more and more viscid until it finds its way through the capillaries with more or less difficulty, if at all; at a somewhat later period it becomes so thick and sticky that it can but besmear or completely occlude the capillaries and glandular structures. It begins its death-dealing work, as a rule, after the vessels have been reduced in calibre in consequence of exposure to dampness or chilling draughts, the series of effects of primary and most frequent occurrence being the

congestion, irritation, febrile action and transudation that we see in the accession, progression, and termination of coryza, or a "cold" in the head—all this occurring sometimes in the absence of the aforesaid exposures, and for the reason that the material in question becomes so highly concentrated that it can no longer find its way through the perfectly patulous capillaries and must therefore become impacted therein.

Pathogen, in a changed or partially decomposed state is the material that is transuded from the mucous surfaces—pushed out of the circulating system, as it were—in the progress of such diseases as coryza, catarrh and phthisis pulmonalis. In the course of its sojourn within the body, pathogen assumes many forms or degrees of consistency, from that of something which is thinner than the thinnest specimen of catarrhal matter on up to the various spheroidal solidifications which are so eminently destructive to life, namely, HYALINE BODIES, TUBERCLES, GIANT CELLS, EPITHELIAL CELLS, EMBRYONAL CELLS AND CANCER CELLS, the thinner material giving rise to the more concentrated by undergoing either dehydration or *infective* coagulation.

Figs. 1, 2, 3, and 4 are intended to show how pathogen



effects a capillary plexus, as it does in the progress of various diseases from coryza to phthisis pulmonalis. Fig. 1 represents a capillary plexus which is perfectly patulous, the openness of the vessels being shown by the arrows passing from the arteriole clear through to the venule. Fig. 2 shows incipient congestion, the granular areas indicating the lodgment of pathogen in the capillaries. Fig. 3 illustrates the more advanced stage of the morbid process, the vessels being dilated in consequence of the incarceration of a portion of blood between the obstruction in front and the blood pressure and arterial valves in the rear—a difficulty which increases with every stroke of the pulsating

organ until the imprisoned fluid is forced out of the vessels and into the interstitial spaces, as shown by the arrows in Fig. 4.

DIABETES MELLITUS.

Diabetes Mellitus has always been regarded as a disease of the kidneys, and yet the writer has demonstrated beyond the possibility of a reasonable doubt, that diabetes begins and ends with CHRONIC GASTRITIS and that the kidneys become victims of the *bad work* done in the gastric laboratory—facts which have escaped detection in consequence of two eminently delusive circumstances; first that diabetics in general have a "good appetite;" second: that they experience little or no trouble in the gastric cavity—facts which find explanation in the logical hypothesis that the patient's digestion though decidedly below par, is sufficiently energetic to prevent fermentation. The want of evidence of trouble in the stomach has led to the supposition that the digestion is good, when in reality it is very bad. That is to say, the stomach of the diabetic is so seriously inflamed and otherwise disordered that it can do but little more than PARTIALLY digest such compactly

organized alimentary principles as albumen, cellulose and starch granules.

All partially digested food, being worse than useless, must be gotten rid of in some way or other. With this end in view the carbon of the imperfectly elaborated material is hydrated—converted into that eminently soluble carbohydrate, called glucose—so that it may be readily taken up by the blood and conveyed to the outer world, the urinary apparatus being the most available outlet. A large percentage of the food is thus wasted, the patient GRADUALLY STARVING in spite of the ingestion of plenteous supplies of food, while his kidneys are being wrecked by the vicarious work of discharging the gradually decaying glucose. By reason of this decay the urine is excessively acid in its reaction. For the same reason the blood is occasionally found to be acid when it should be alkaline. Some diabetics become so profoundly laden with decaying saccharine matter that a distinctly sour smell is emitted from all parts of the body.

BRIGHT'S DISEASE.

Albuminaria Chronius or *Bright's Disease,* has proved to be even more problematic and intractable than diabetes,

the principal reasons for the failure to cure it being the very plausible but erroneous suppositions, first that the digestion is good, and, second, that an essential element of the blood is escaping in consequence of the injuries inflicted upon the kidneys by the morbid process, the erroneous theory meaning ineffectual treatment.

In this disease the various structures, retinal, renal, vesical and lymphatic are disabled on account of the bad work done in the stomach, the resulting pathogen having blocked the capillaries thereof, as explained in Figs. 1, 2, 3 and 4. Nearly every fact that goes to make up the symptomatology of nephritis is attributable to the accumulation and obstructive action of imperfectly elaborated albumen and cellulose, the material above designated as pathogen. In the beginning but little trouble is experienced, but in the progress of time this vile intruder upon the sanctity of the vital organism becomes so highly inspissated that it is bound to clog and finally wreck the renal glands and vessels, facts the occurrence of which is evinced by the appearance of sedimentary materials and tube-casts in the urine, the earthy matter denoting retention and inter-systemic decomposition of the renal excretion, while the casts point to the starvation and consequent exfoliation of the lining

membranes of the uriniferous tubules. With the view of obviating the multifarious disasters that the "foreign body" in question is capable of producing, the kidneys are called upon, as it were, to cast it out, in which event it appears in the urine in the shape of catarrhal matter, or of serum albumen, or of pus corpuscles. In the early history of the disease the decline of the vital forces is so gradual that it is scarcely noticeable, while the losses sustained by the nutritive system finds APPARENT, not real, compensation in the accumulation of pathogen and ordinary waste matter, this fact having the doubly deceptive effect of a maintenance of the body weight, and a species of stimulation (due to the toxicity of the waste products) which is so similar to the normal sense of wellbeing that the individual is led to suppose that the existing conditions are good, when the fact is they are very bad; for this is the class from which apoplexy, paralysis and "heart failure" get their recruits. Today the individual "feels well' and is the "picture of health," tomorrow he is a paralytic or a quivering corpse.

So long as the albuminoid material in question remains in the plastic state it is borne from place to place in the blood stream interfering more and more as time progresses

with vital operations in general, and with nutrition and elimination in particular, the former fact accounting for the increasing debility, and the latter for both, the low specific gravity and the aforesaid evidences of intrarenal decomposition; in case it lodges in or presses upon the optic nerve the vision is impaired or completely obscured, according to the extent of the infiltration; in case it lodges in the capillaries of the retina, the pressure afforded by the on-coming blood stream compels the pent up blood and albumen to escape, producing the haemorrhage and the albuminous transudation that we see in the eyes of those who are involved in the toils of Bright's disease. In the event that the crystalline lens becomes the seat of pathogenic infiltration, we have what is called cataract. In case pathogen blocks the lymph-nodes, the lymph is forced by the vis a tergo of the lymph-stream to escape into the subjacent tissues, thus producing dropsy.

LOCOMOTOR ATAXIA.

Locomotor Ataxia is attributed by medical writers in general to sclerosis of the posterior columns of the spinal cord. This is good as far as it goes, but it lacks a good deal of explaining the difficulty. It simply brings us face

to face, as it were, with a question that no authority has answered, namely, what causes this hardening of the spinal cord? This apparently unanswerable question has found an incontestible answer in the proposition, that pathogen disables the spinal cord by insinuating itself between the various members or filaments thereof, and with sufficient force to interfere with both the nutrition and the action of some of the nerve fibres, while others are comparatively free and able, therefore, to respond to the mandates of the will, the result being that anarchistic performance of the muscles and nerves which is called locomotor ataxia. The thickening and the opacity of the pia mater and the arteries, and the tendon and visual reflex deficiences are one and all produced by the same agent and in the same way. The fact that eventually the cord becomes reduced in size, gray in color and firmer than normal, is attributable to dehydration of the offending infiltrate; namely, pathogen. It would not be very far amiss to assert that locomotor ataxia is Bright's disease minus albuminuria; for it is an undeniable fact that they have several symptoms in common, the more prominent being pharyngitis, a voracious or variable appetite, and the presence in the urine of the same kind of debris, tube-casts not excepted.

THE GERM THEORY EXPLAINED.

As time advances and preconceived notions fade away, the medical profession will become more and more alive to the fact that PATHOGEN is that formerly unknown quantity in the etiologic equation which lies at the bottom of diseases in general and has been variously referred to as the "predisposition," the "susceptibility," and a "lowered vitality"—producing these effects by interfering with both nutrition and elimination—and that it paves the way for the propagation and action of infective organisms by affording them a "suitable soil." It will then be seen that the discovery of pathogen has rounded out the Germ Theory in all the completeness and amplitude of a well established scientific proposition, as the writer contended and demonstrated, experimentally, many years ago. In short, it will be seen that pathogen is the universal cause; that *pathogenosis* is the universal disease, and that a *pathogenolyte*—an agent which will "cut," or liquefy, pathogen —is the universal remedy; for, when thus reduced, this baleful substance will be sufficiently *diffusible* to permit of its being discharged through natural channels.

Pathogen is known to science as serum albumin and

other albuminous incumbents of the living organism, but to the writer as partially elaborated organic matter, as a derivative of those elements of ingesta which have for some reason proved refractory to the digestive capacity of their host; namely, Amylum, Gluten, Cellulose and the Fibroid Elements of flesh foods. Pathogen is the real cause of all morbid changes. The Spleen breaks up pathogen when it has reached a certain stage of concentration in passing through its trabeculae—as do the lymph glands—into globular masses of plastic material called white blood corpuscles. The expansion of CO^2 generated in their decay is the cause of the protrusion of a cell, afterward it resumes its former shape in obedience to that power that gives rotundity to various things—from the dew drops to the celestial spheres. Pathogen, which is of Amylaceous antecedents is transformed into glucose, which (being more soluble) is disposed of with comparative ease, but Pathogen derived from Cellulose, lignin and fibroid tissue is practically insoluble in water of blood or water of any quality and temperature—hence it is discharged with difficulty and inflicts great damage upon the avenues of escape. But from less refractory substances as gluten, albumin and legumin, is disposed of in the following ways: it is converted

into bile, catarrhal transudate, or pushed out of the circulation and stored in places offering the least resistance, forming tumors, or through the renal emunctory in the shape of serum albumin, as in Bright's Disease, or by converting the carbon element into a carbohydrate (glucose) and discharging it through the kidneys, as in diabetes, or, converting the carbon into hydrocarbons (fat) and storing it in places until abstinence, febrile action or a more active life affords opportunity for the blood to take it to the lungs, where it is oxidized and discharged, or completely decomposing it with the aid of infective organisms, and with the incidental effect of imparting color, type or distinctive character to the morbid process, as in the different infections. In the disintegration of the leucocytes at different stages, the different foci become susceptible first to one dye and then another—at one stage taking on the stain of eosin, called eosinophilia; at another methylblue, etc.—sometimes they undergo fatty degeneration and are called myelocytes—simply undergoing a process of hydrocarbonization, it being changed into a less dangerous thing, namely, fat.

INFECTION AND IMMUNIZATION.

The part that disease germs and other bacterial organism perform in the grand scheme of nature is that of assistant in the disintegration of unstable and perishable forms of organic matter. Toxines are all soluble and can be easily removed, while Pathogen can be removed if at all, by the slow process of transudation, or by the still more wasteful, hazardous and painful process of inter-systemic combustion, and inflammation, causing conflagration in part of the body, and fever in the whole. Microorganisms are not parasites, but ferments—they do not act on healthy tissues but on the excretions, or tissue and materials which have ceased to live; and they assist in the removal of the material that clogs the circulation, thus conserving, not assailing, vital interests. Beware, not of diseased germs, but of the vile product of abortive digestion, Pathogen. When the body is practically free from leucocytes, albuminoid materials commonly called serum-albumin, and hemialbumose, infection is absolutely impossible. No Pathogen—no disease. Pathogen is the rubbish burnt out by the torches of infection; vaccination and serum injection, the result being immunity. The benefits conferred by the animal ther-

apy, the antitoxines and the various seras is attributable not to the destruction of the germs, but to the proteolytic action of these remedies; that is, to their ability to liquefy Pathogen, thus removing the material upon which the morbid process depends. Pathogen is partially digested organic matter, that portion of the ingesta which had been sufficiently liquefied to enable it to find its way into the circulating system, but not enough to enable it to pass through the infinitely finer tissues of which the walls of the nutritive cells of living organism are composed; the digestive apparatus could not reduce it to a perfectly dialyzable and non-coagulable state. It is the material which has not been reduced to peptone. Pathogen makes the production of more Pathogen inevitable by locking up the gastric follicles and capillaries, producing gastric congestion and its train of evils. In the great majority of cases of marital infelicity, the parties to the conflict are more to be pitied than blamed, as the real cause of trouble is the inter-systemic nervous irritant, Pathogen, and they can be restored to their pristine loveliness by conciliatory advice and measures to eliminate Pathogen. In a common cold the matter discharged was in the blood before exposure occurred, bringing on congestion, febrile action and finally transuda-

tion. Constipation is due to the plugging of the capillaries of the bowel with Pathogen.

In fevers the obstruction of cutaneous glands and capillaries is the essential feature, though not the primary lesion, and the febrile effort tries to dislodge Pathogen.

CHAPTER V.

PATHOGEN IS THE UNDERLYING CAUSE OF ALL DISEASES.

In Yellow Fever, owing to the lodgement of Pathogen in the hepatic ducts, the bile eventually is absorbed and becomes putrid and dark in color and is vicariously discharged from the gastric capillaries in the stomach and ejected by emesis (black vomit). In inflammation the capillaries become obstructed by Pathogen and then exudation of cells results. *Epileptics* all have the oral cavity inflamed and tumefied, also a ravenous appetite, the abnormal craving being due to the irritation, caused by the gastric obstruction. An epileptic paroxysm is the cumulative effect of the same condition, and the nervous tension due to long continued irritation, causes exhaustion of the peripheral nerves, a rush of blood upon the nerve centers, and a detonation of the nutrient matter of the centers. The Aura Epileptica is symptomatic of the fact that the vasomotor system has become exhausted in consequence of the long continued attempt to maintain the circulatory balance while the blood is laden with plastic Pathogen, and that the blood is being forced by atmospheric pressure from the

peripheral to central and cerebral regions with a paralyzing effect. *Rheumatism* is also produced by this fertile producer of toxic material. *Hypertrophy, Atrophy* and *Obesity* all depend upon a common cause. Hypertrophy is due to the interstitial pathogenosis, the damming back of blood, pathogenic infiltration and a defensive proliferation of tissue.

NERVOUS DEBILITY, A MISNOMER.

Neurasthenia is supposed to be due to loss of nervous energy, but the reverse is the case, as it is due to an increase of nutrition of the nervous system and a decrease in the muscular system. In every case there is evidence of gastric pathogenosis; blocking of the gastric apparatus so that the organ cannot properly prepare the food which the entire system requires, hence the nerves, being always first in time to act, play the part of the pig, gulping the greater part of the food and leaving the less active to take the little left. The muscles are similarly deprived of their just quantum of food, so that the peripheral circulation is poor, the superficial vessels are clogged with Pathogen and the greater part of the blood retires to the central regions, where the principal nervous centers are located, hence we

have the malnutrition to the muscles and hypernutrition to the nerves, so that the weak muscles are dominated by the strong nerves, hence the misnomer Nervous Debility, as there is no such thing as nervous twitchings, it being muscular contraction superinduced by nervous irritation, due to Pathogen, the matchless disturber. The self command is due to the muscular and nervous systems being equally nourished. *Fibrosis*: In fibrosis the fibrin ramifies the remotest recesses of the circulation, adhering to the walls of vessels and forming an embolus perchance therein; it wends its way through the vessel walls into the interstitial spaces of the lungs, liver and kidneys, also between the muscles, and eventually becomes inspissated and contracts, hence the wrinkled face, halting gait, and waning intellect we see in the progress of senility or premature old age—also the contracted kidneys, liver, lungs, etc. Fibrosis is due to the excessive use and imperfect elaboration of glutens, albumins and albuminoids or cellulose—they are absorbed partially digested. A considerable portion of the food absorbed before its arrival of complete liquefaction is transformed into fibrinogen by the liver.

PATHOGEN CAUSES CANCER.

Cancer occurs at the time of life when the system vitally should be in the height of its integrity, and in the last ten years it has increased over twenty-five per cent. The plastic material in all malignant neoplasms is Pathogen.

Absence of hydrochloric acid in gastric carcinoma shows it is of gastric origin, and the so-called cancer cells are partially digested fibrous tissue, lignin and cellulose, materials that the spleen would not prepare for elimination by converting into fibrinogen, whose presence in the circulation is at the bottom of metastases, or blocking of the glands and vessels, and the recurrence of cancer after extirpation is due not to the leaving of cancer cells in the body, but to a continuation of the gastric disorders, and the production of Pathogen, evolved from the fibrous tissue of meats, the cellulose of grains, and the lignin or wood fibre of the coarser vegetables. Cancer is known as a cell-like particle of some kind, but unknown as a product of disordered digestion. The faucial surfaces are always swollen, inflamed and coated with catarrhal transudate, showing that similar conditions exist further down in the stomach, as in gastritis, as the slimy transudate coats the peptic glands, caus-

ing deficiency of pepsin and hydrochloric acid. In short, the disabled stomach only partially digests the albuminoids. Dyspepsia is sometimes disguised, going on just far enough to prevent fermentation. Authorities have been misled by the second subdivision of the cell theory in cancer. The melanotic element of cancerous growth and cachexia is due to pathogenic obstructions of the hepatic glands, and the consequent inability of the liver to dispose of the bile, which imprisoned bile permeates the circulating system, wends its way to the cancerous growth, infiltrates the skin, producing dark pigment and cachexia.

DISEASE OF THE CIRCULATORY SYSTEM.

Heart Disease has baffled Pathologists. High blood pressure is the immediate cause, but the real cause or more remote factor has not been discovered. The high blood pressure causes the valves to leak and the walls of the heart to dilate, and the cerebral vessels to burst. Although apparently dissimilar, Diseases of the Heart, Bright's Disease and Cerebral Diseases are due to the same cause. Serum Albumin has always been erroneously thought to be the essential element of the blood. The albumin discharged from the kidneys in Albuminuria is Pathogen, and is re-

sponsible for the high blood pressure that underlies cerebral hemorrhage and the various Heart troubles; (1) the passage of digested and partially digested foods is constantly going on, while the discharge of waste matter is seriously impeded; (2) the impediment is serum albumin which blocks the glands and capillaries on which elimination depends, as shown by the imperfect condition of the skin, liver and bowels, and more especially the low specific gravity of the urine; (3) the high degree of plethora is established, which means high blood pressure and tension in the vaso-motor nervous system; (4) the blood is rendered so thick and viscid by Pathogen (serum albumin), and impure by retained waste matter, that it is impossible for the heart to propel it through the peripheral capillaries; (5) the blood then naturally recedes to the internal regions where the vessels are larger and more patulous; (6) this crowding of the blood produces such changes as Aneurism of the Aorta, Dilatation of the Heart and weakening of the valves; (7) the time comes when the energies on which the vaso-motor tension depends will be exhausted, then a rush of blood from the periphery inwards (due largely to atmospheric pressure), which will reveal the weakest spot, as in a paralyzed or ruptured Heart or Cerebral vessels. The

troubles are all referable to gastric trouble and to the accumulation of Pathogen in the system. The theory of compensatory hypertrophy of the heart is erroneous, as all hypertrophied hearts are degenerated and weakened. The dilatation of the heart is due to vacuolation, or hollowing of the muscle fibres, as in Aneurism, Varicose Veins and Cystic Diseases of the Kidneys, Liver and Spleen; (1) from the increased tax upon its energies the heart finds it difficult to force the viscid blood through the peripheral circulation; (2) the walls of the capillaries are besmeared with Pathogen so the cardiac structure fails to obtain proper nutrient; (3) the muscle cells made empty become elongated, the resulting effect being dilatation of the muscle walls and relaxation of the valves. Cystic disease of any organ is due to the same causes. *Scurvy,* another unexplained mystery, where the blood extravasates beneath the skin—producing a fungous appearance of the gums, loosening of the teeth, blood serum in the joints, and other hemorrhages, etc., is due to the fact that at the various points at which the disease makes its appearance, Pathogen has blocked the capillaries, and the blood is driven against the obstruction with sufficient force to cause a leakage to occur in the previously starved and debilitated vessels, causing the hemor-

rhagic condition called Scurvy. *Impotence*: It is well known that erections depend upon the filling of the Corpora Cavernosa with blood, which must pass through the delicate capillary terminals and scarcely less delicate system of spiral shaped arterioles which have their origin in the Pudic artery, namely the helicine. As the Pathogen laden blood is unable to enter the Corpora Cavernosa, the result is Impotence. In the female it is due to Pathogenic obstruction of the Ovarian capillaries of the Fallopian Tubes. *DIABETES MELLITUS* has increased 1459% in the past fifty years. The Diabetic like the Consumptive, is literally consumed by the things he consumes. The good appetite of a Diabetic is a specie of irritation and craving similar in its origin and ultimate consequences to that of inebriety. In Diabetes Pathogen blocks the liver and Pancreas. The Liver is unable to reduce fibrin and amylaceous materials to bile, hence we have Glycosuria. The Pancreas is unable to produce enough juice to neutralize the acids of food, hence materials are absorbed which change the blood to abnormal acidity, which is intensified by the souring of the diabetic sugar. The partially digested material must be gotten rid of, hence its carbon element is hydrated (diabetic sugar) and discharged through the Kid-

neys, and finally the Carbon of any kind of food is transformed into sugar, as in the extreme cases the carbon of albuminoids is turned into sugar. Starchy foods produce more sugar in the diabetic than the nitrogenous, because starch granules are harder to digest than albumen. This explains the well known fact that avoidance of starchy foods does nothing more than modify the output of sugar, the patient remaining diabetic in spite of the avoidance. The time finally comes when the patient cannot digest albuminous foods—then he discharges albumen. Eventually the material clogs the renal glands and capillaries, producing the same effects produced by a foreign body; irritation, inflammation and necrosis, the exfoliation being the lining membrane of the uriniferous tubules. Glycogen is not the producer, but the thing produced, being the first step of hydration of the partially digested foods; glucose being the finished product, and its destiny is not nutrition, but elimination, as glucose is not found in the nutrient cells of the muscles and nerves. The excessive thirst is nature's provision to flush the circulating system, and to get rid of its burden of undigested foods, the carbon of which has been turned into glucose, and excessive urination is the means employed. *BRIGHT'S DISEASE*: The cur-

rent opinion is that chronic nephritis is from first to last a disease of the Kidneys—that the escape of albumen is due to injuries that the morbid process has inflicted upon the renal glands and uriniferous tubules, and that the debility is due in most part to the escape of the most nutritious element of food, Albumen. *BRIGHT'S DISEASE* is from first to last a disease of the Stomach. The food is changed into what is called hemialbumose, it being sufficiently diffusible to get into the circulation, but incapable of getting into the nutrient cells. As earthy matters of the soil must be completely liquefied to subserve plant life, so must food be completely dissolved. The Kidneys are called upon to ward it off and do so in the shape of serum albumin. The system wants to get rid of the useless material, albuminous foods, and the attempt to make up the loss by prescribing albuminous foods, serves to make matters worse. The Pathogen which clogs the capillaries in the Kidneys produces first congestion, then inflammation and exfoliation of the lining membrane of the uriniferous tubules, necrosis of the renal structure, retention of urine, intra-renal decomposition of urine and absorption of toxines, producing Uraemic Poisoning. In case the stomata of the lymphatics become clogged with Pathogen, as they often do in the pro-

gress of Nephritis, the lymph remains in the interstitial spaces and accumulates, producing oedema. In the event it lodges in the lymph glands, it will be forced by the oncoming stream to escape in the interstices of adjacent tissues, producing indirect interstitial oedema, and one or the other are responsible for the dropsical aspect of every disease. If it lodges in or presses upon the optic nerve the vision becomes impaired. In the retinal capillaries the pressure of the circulation will cause the pent-up blood to escape, producing retinal hemorrhage, or force the albumin out of the circulation producing the albuminous patches that occur, and if albumin finds its way into the crystalline lens of the eye, opacity or cataract is produced. The vitreous humor of the eye is similarly bedimmed by the same thing.

PULMONARY CONSUMPTION.

The Consumptive is actually consumed by the things he consumes. The cause of Consumption is gastric Pathogenosis. The lodgment of Pathogen in the gastric follicles and capillaries, the curtailment of the digestive fluids, the lessening of peristaltic action, gastric inflammation then a decline of the vital energies, a more and more frequent coryza, the establishment of catarrhal conditions, a shrinkage of

motor mechanism and muscular structures, a clogging of the Pulmonary capillaries, the propagation of infective organisms, the formation of tubercles, a partial decomposition, transudation and expectoration of the offending material, the starvation and sloughing of the pulmonary tissues, followed by death.

The theory that the sputum of the consumptive is the debris of wasted tissue has never been established on rational or experimental lines. How can we account for the material discharged in coryza, etc., acknowledging the retrograde tissue metamorphosis to be baseless? It is due to gastronomic errors or indiscretions. The patient becomes emaciated on account of his inability to digest foods, and becomes pale, not from want of iron or Haemoglobin in the blood, but to a lack of arterial blood in the peripheral cells and vessels, due to the clogging of the capillaries. Pathogenic obstruction of the lungs has a worse effect than upon the muscular structures, as the pulmonary organs are centrally located, and the consequential hyperaemia, stagnation, starvation and pent-up heat (due to the decomposition of Pathogen) together with the destruction of tissue, both of which cause internal conflagration, finds external expression in the shape of hectic fever. The skin

of a tubercular person becomes pale and dead, as its pores are reduced in calibre or closed. The lungs must take on the extra work, and there is also added the resistance to respiration due to the contraction of the skin. The accumulation of Pathogen in the capillaries of the lungs has a partial effect of Anaesthesia, which renders the patient oblivious to the situation. The absorption of Oxygen (the prerequisite to feeling, as well as to action) is greatly diminished because of the lodgment of the Pathogen and sputum in the air cells, so that the sensorium cannot properly perform its functions. The senses are blunted by the inhibition of Oxygen, and the victim of the disease is oblivious of the impending crisis, and so profound is the reigning Anaesthesia and so buoyant the resulting hope, that he plans for the distant future, but dies tomorrow. The overburdening of the blood in the pulmonary capillaries in Phthisis is due in the most part to the peripheral capillaries becoming besmeared with Pathogen, and a large percentage of the pulmonary capillaries are completely occluded. The enfeebled Heart cannot force the blood into the former or through the latter, hence the damming back in the Pulmonary vessels. If the patient exerts himself to an inordinate extent or gives way to the oft recurring morbid appetite, a

sudden engorgement of the vascular system might take place, attended by several bad results. The pulmonary vessels are in a region where the atmospheric pressure forces the blood to be driven against the obstruction, producing a rupture in the diseased capillary, again Pathogen in the incarcerated blood often decomposes and is forced from the blood vessels into the air cells, causing diminution of respiration, thus cutting off the Oxygen which is greatly needed to produce vitality for the expulsion of the sputum. Again it may be forced in the same way from the capillaries into the interstitial spaces or parenchyma of the lung, where it undergoes those changes of form and consistency which have mystified the world for centuries. (1) There is inspissation or dehydration; next the spheroidal concretion or formation of tubercles; then the blending of these into larger masses and followed by caseous degeneration; next and last into calcareous matter, it being nothing more nor less than the earthy constituent of Pathogen, every vestige of its organic constituency having been obliterated in the progress of systemic decay. Again, owing to the resulting stagnation and innutrition, both the blood and its dependencies, the subjacent tissues pass into decay, producing cavities, etc. In every case of Consumption Pathogen was at

once the predisponent, the continuant and the determinant. When we find throat and rectal troubles in chronic disease, is it not reasonable to suppose that there is trouble midway in the alimentary tract, as every case of Consumption is accompanied with gastric disturbance, which becomes more pronounced as the disease progresses? How can we explain that the grand outflow of sputum forms a grand aggregate of several times the weight of the body, if not to Pathogen? The elimination of Pathogen is foremost of all the remedial requirements. A Consumptive suffers from both hot and cold; a hot interior and a cold exterior. Pathogen is the fuel and the microbe the spark, and as the forces eliminant are constantly decreasing while "resistance Pathogenic" is constantly increasing, it follows in the absence of appropriate medication that a fatal result is only a question of time.

PURPURA VARIOLOSA is nothing more nor less than malignant Scorbutus (Scurvy) complicated and greatly aggravated with Variola. Imagine when this widely distributed Pathogen becomes impregnated with the greatest of all decomposing agent, the contagion of Variola. Behold the sudden transformation of the Pathogen wending its way through the capillaries of all parts of the body into a thick coagulum; see the heart throbbing with fearful

power and rapidity, trying to dislodge the offending materials, obstructive and infectious, and to keep the stream in motion; see the blood piling up against the coagula; see the vessel walls yield to the internal pressure and the blood spurt into the different tissues of the body, then picture the Pathogen ablaze with the fire of inflammation, as it is decomposed at a fearful rate and with much heat—then you know what a fearful thing Pathogen really is.

CHAPTER VI.

IN CONCLUSION.

(1) The fact that the white blood corpuscle looks like a cell, does not necessarily mean that it is a cell; (2) that it is a very grave mistake to suppose, as originators of current teaching have done, that the leucocyte is differentiated into component parts of the living organism; (3) that the differentiation hypothesis has never been substantiated by the observant of such a change; (4) that the hypothesis in question is discredited by the fact that the cells of "Granulated Tissue" spring directly from the tissue on which they are formed—they do not first exist as independent organisms and then attach themselves to previously existing tree or plant; (5) that the kindred doctrine of vital duplication as applied to a leucocyte is nothing but a matter of disintegration, as irregularities thereof surely indicate; (6) that the "Amoeboid Movement" of a leucocyte is not animal locomotion, but the result of disintegration; (7) that the protoplasm from which the white blood corpuscle is formed is not living protoplasm, but dead and practically useless organic matter, namely, Pathogen; (8) while it is an incontestable

proposition that plants and animals are made of cells, it is equally incontestable that those cell-like particles we find in the blood are not living cells but differing forms of Pathogen; (9) it is evident that we have fallen into the error of mistaking similarity for identity, and that our blundering involves a case of mistaken identity of the highly excusable order.

THE NATURE AND MODUS OPERANDI OF TREATMENT.

The principal factors in the eradication of the supposedly incurable diseases are:

1. An attenuated solution of those powerful yet harmless liquefacients which are known to science as proteolytes, and which have the capacity to reduce to the perfectly dialyzable state, not only the catarrhal and fibrinous materials that encumber the systemic channels, but the practically solid substance of which "tubercles," tumors, and "cancer cells" are composed.

2. That gentle yet powerful form of energy which annihilates time and space in the celerity of its obedience to the will of man, and which is called galvanic electricity. I have devised a combination of devices which makes it

possible for this wonderful agent to lend its electrolytic and cataphoric powers to that of the above named liquefacients, carrying these agents in the sweep of its flow from the surface of the body where they are applied, into the deep-seated areas, where the material on which the morbid process depends is located, the result being a restoration of the health.

But cataphoresis as ordinarily applied has proved to be somewhat unsatisfactory, owing to the resistance afforded by the skin. This structure is so dense that it is very nearly impervious to fluids in general, and to medicated solutions in particular. Here is where the first call for relaxation is made. The pores of the skin must be opened to the fullest extent so that the remedies may easily pass through this structure and onward to the deeper tissues, where the pathogen which we desire to liquefy and remove is located.

The relaxation of both the integument and the obstructed vessels is effected by means of a relaxing temperature, which ranges from 105 to 115 degrees Fahrenheit, the happy medium being 110 degrees. That is to say an attenuated, and, therefore, penetrating solution is applied over the affected parts by means of linen pads.

Patients are treated once every week day, while resting on a couch, or operating chair. One of the said pads with its electrode is applied over the stomach and the other beneath that part of the patient's anatomy in which the other lesion is located. In diseases of the kidneys and in ataxia of the lower extremities, the lower pad is placed between the twelfth dorsal and the fourth lumbar vertebrae; in ataxia of the upper extremities it is placed beneath the "cervical enlargement." The treatment lasts twenty minutes, and in order to secure the best results, the polarity of the current must be reversed at the end of the first ten minutes. The remedial agents thus applied are carried by the sweep of the powerful, but almost imperceptible galvanic current, from the linen pads into the deep-seated tissues, the result being the reduction of the viscid obstruent (pathogen) to a perfectly diffusible state —a change which enables the body to discharge it through the natural outlets.

The measures above described, important as reason and extended experience have shown them to be, are not sufficient, as a rule, to meet the requirements of the disease, unless it be of very recent occurence. For, as a rule, the blood vessels are shrunken and the circulation is unbal-

anced, the periphery receiving an inadequate blood supply, while the internal parts are correspondingly hyperaemic.

For these reasons the skin, the bowels, the stomach, the kidneys, and the liver, are all sluggish in their action and behind time in the performance of their respective duties. All of these organs must be brought into complete and timely action. The drugs usually employed in such cases are to be regarded as a necessary evil. For, while they are not, properly speaking, curative, they are practically indispensable, it being necessary to spur the organs into action, while other and more effective measures are being employed.

In locomotor ataxia the foregoing exercises must be supplemented by others which are calculated to revive the spinal nerves. In a word, both the nerves and their motor dependencies—the muscles of the affected limbs—must be not only freed, but strengthened and re-trained. These ends are attained by either manual or mechanical massage, or by both together. Mechanical massage is administered to the spine by such machines as the Victor Vibrator, and to the other structures by apparatus devised with the view of securing the best results without producing nerve-racking sounds.

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In short, I would respectfully submit, that in the course of years that it has been in process of verification the above described treatment, together with such dietetic restrictions as the foregoing theory of pathogenesis naturally implies, have proved sufficient to cure the majority of those cases of diabetes, Bright's disease and consumption, which were under treatment for a reasonable space of time, and a good percentage of cases of those still more problematic diseases which are called, chorea, epilepsy catalepsy, heart-disease and locomotor ataxia.

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